

INTERNATIONALE ANMELDUNG VERÖFFENTLICH NACH DEM VERTRAG ÜBER DIE
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)

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(54) Title: ACCELEROMETER

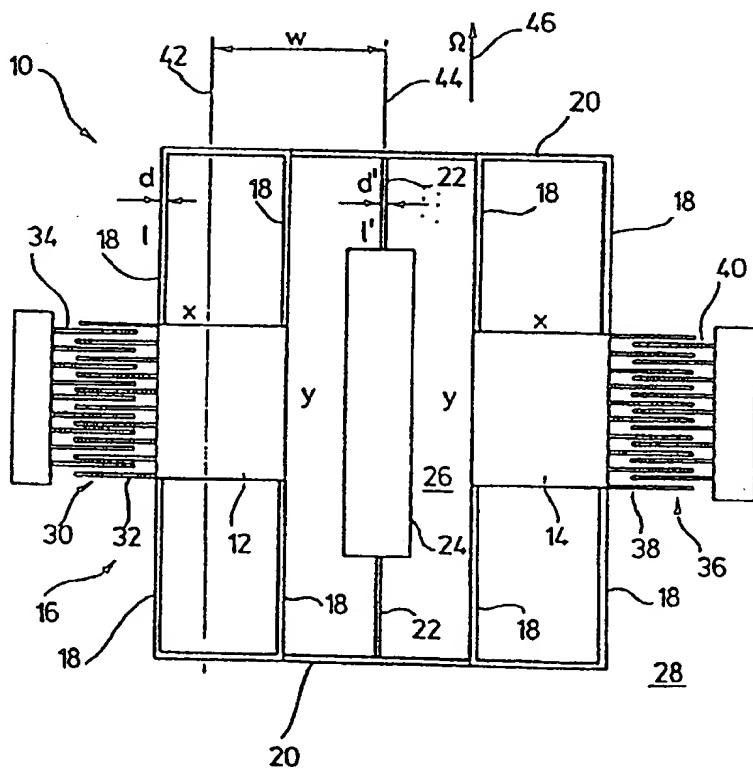
(54) Bezeichnung: BESCHLEUNIGUNGSSENSOR

(57) Abstract

The invention concerns an accelerometer, in particular a Coriolis rate-of-rotation sensor, with a mass suspended by springs from a support so that it is displaced under the action of an acceleration, plus processing circuits for determining the displacement of the mass caused by the acceleration, in particular a Coriolis acceleration. The invention calls for the mass (12, 14) to be suspended in such a way that displacement of the mass (12, 14) by interfering accelerations, in particular linear accelerations, acting on the mass is suppressed.

(57) Zusammenfassung

Die Erfindung betrifft einen Beschleunigungssensor, insbesondere Coriolis-Drehratesensor, mit einer federnd an einem Substrat (Basis) aufgehängten, aufgrund einer Beschleunigungseinwirkung auslenkbaren seismischen Masse, sowie Auswertemitteln zum Erfassen einer beschleunigungsbedingten Auslenkung der seismischen Masse, insbesondere zum Erfassen einer Coriolisbeschleunigung. Es ist vorgesehen, daß die seismische Masse (12, 14) derart aufgehängt ist, daß eine Auslenkung der seismischen Masse (12, 14) aufgrund von auf dieser wirkenden Störbeschleunigungen, insbesondere Linearbeschleunigungen, unterdrückbar ist.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/DE 95/00723

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G01C19/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G01C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| P, X | US,A,5 349 855 (BERNSTEIN JONATHAN J ET AL) 27 September 1994 see column 3, line 24 - line 31; figure 1A see abstract --- | 1-13 |
| X | PROCEEDINGS OF THE WORKSHOP ON MICRO ELECTRO MECHANICAL SYSTEMS (ME, FORT LAUDERDALE, FEB. 7 - 10, 1993, no. WORKSHOP 6, 7 February 1993 INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, pages 143-148, XP 000366871 BERNSTEIN J ET AL 'A MICROMACHINED COMB-DRIVE TUNING FORK RATE GYROSCOPE' see the whole document --- | 1-13 |

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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Date of the actual completion of the international search

Date of mailing of the international search report

11 September 1995

25.09.95

Name and mailing address of the ISA

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Authorized officer

Hunt, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/DE 95/00723

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
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| A | US,A,5 025 346 (TANG WILLIAM C ET AL) 18 June 1991 see abstract; claim 1; figure 1 ----- | 1 |

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...form ... on patent family members

Intern. Application No.

PCT/DE 95/00723

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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| US-A-5349855 | 27-09-94 | NONE | |
| JP-A-05248874 | 28-09-93 | US-A- 5359893 | 01-11-94 |
| US-A-5025346 | 18-06-91 | NONE | |

Patentansprüche

1. Beschleunigungssensor, insbesonders Coriolis-Drehratensensor, mit einer federnd an einem Substrat (Basis) aufgehängten, aufgrund einer Beschleunigungseinwirkung auslenkbaren seismischen Masse, sowie Auswertemitteln zum Erfassen einer beschleunigungsbedingten Auslenkung der seismischen Masse, insbesondere zum Erfassen einer Coriolisbeschleunigung, dadurch gekennzeichnet, daß die seismische Masse (12, 14) derart aufgehängt ist, daß eine Auslenkung der seismischen Masse (12, 14) aufgrund von auf dieser wirkenden Störbeschleunigungen, insbesondere Linearbeschleunigungen, unterdrückbar ist.
2. Beschleunigungssensor nach Anspruch 1, dadurch gekennzeichnet, daß zwei mechanisch miteinander gekoppelte Schwingmassen (12, 14) eine Schwingstruktur (16) bilden, die durch einen elektromagnetischen oder einen elektrostatischen Kammantrieb (30) in

ACCELEROMETER**Titel:****Veröffentlichungsnr. (Sek.)****WO9534798****Veröffentlichungsdatum :**

1995-12-21

Erfinder :

KULCKE HANS-MARTIN (DE); GOETZ SIEGBERT (DE); LAERMER FRANZ (DE); OFFENBERG MICHAEL (DE); FUNK KARSTEN (DE); SCHILP ANDREA (DE)

Anmelder :

BOSCH GMBH ROBERT (DE); KULCKE HANS MARTIN (DE); GOETZ SIEGBERT (DE); LAERMER FRANZ (DE); OFFENBERG MICHAEL (DE); FUNK KARSTEN (DE); SCHILP ANDREA (DE)

Aktenzeichen:

(EPIDOS-INPADOC-normiert)

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DE944420918 19940616; DE951000800 19950113

Klassifikationssymbol (IPC) :

G01C19/56

Veröffentlichungsnummer :**WO** DE19500800**Korrespondierende Patentschriften****Bibliographische Daten**

The invention concerns an accelerometer, in particular a Coriolis rate-of-rotation sensor, with a mass suspended by springs from a support so that it is displaced under the action of an acceleration, plus processing circuits for determining the displacement of the mass caused by the acceleration, in particular a Coriolis acceleration. The invention calls for the mass (12, 14) to be suspended in such a way that displacement of the mass (12, 14) by interfering accelerations, in particular linear accelerations, acting on the mass is suppressed.

ACCELEROMETER**Titel:****Veröffentlichungsnr. (Sek.)****Veröffentlichungsdatum :**

1997-04-02

Erfinder :KULCKE HANS-MARTIN (DE); GOETZ SIEGBERT
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MICHAEL (DE); FUNK KARSTEN (DE); SCHILP
ANDREA (DE)**Anmelder :**

BOSCH GMBH ROBERT (DE)

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DE951000800 19950113**Klassifikationssymbol (IPC) :**

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Veröffentlichungsnummer : EP0765464**Korrespondierende Patentschriften****Bibliographische Daten**

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=> s wo9534798/pn
L1 1 WO9534798/PN

=> d all

L1 ANSWER 1 OF 1 INPADOC COPYRIGHT 1999 EPO

LEVEL 1

AN 41156839 INPADOC
TI ACCELEROMETER
IN KULCKE, HANS-MARTIN; GOETZ, SIEGBERT; LAERMER, FRANZ; OFFENBERG, MICHAEL;
FUNK, KARSTEN; SCHILP, ANDREA
INS KULCKE HANS-MARTIN; GOETZ SIEGBERT; LAERMER FRANZ; OFFENBERG MICHAEL;
FUNK KARSTEN; SCHILP ANDREA
INA DE; DE; DE; DE; DE
PA ROBERT BOSCH GMBH; KULCKE, HANS-MARTIN; GOETZ, SIEGBERT; LAERMER, FRANZ;
OFFENBERG, MICHAEL; FUNK, KARSTEN; SCHILP, ANDREA
PAS BOSCH GMBH ROBERT; KULCKE HANS MARTIN; GOETZ SIEGBERT; LAERMER FRANZ;
OFFENBERG MICHAEL; FUNK KARSTEN; SCHILP ANDREA
PAA DE; DE; DE; DE; DE; DE
TL English; French; German
LA German
DT Patent
PIT WOAI PUBL.OF THE INT.APPL. WITH INT.SEARCH REPORT
PI ***WO 9534798 A1 19951221***
DS RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: JP US
AI WO 1995-DE723 A 19950602
PRAI DE 1994-4420918 A 19940616
DE 1995-19500800 A 19950113
ICM (6) G01C019-56
EPC G01C19/56F1

L2 ANSWER 1 OF 1 INPADOC COPYRIGHT 1999 EPO

MEMBER 1

LEVEL 1

AN 41156839 INPADOC
TI ACCELEROMETER
IN KULCKE, HANS-MARTIN; GOETZ, SIEGBERT; LAERMER, FRANZ; OFFENBERG, MICHAEL;
FUNK, KARSTEN; SCHILP, ANDREA
INS KULCKE HANS-MARTIN; GOETZ SIEGBERT; LAERMER FRANZ; OFFENBERG MICHAEL;
FUNK KARSTEN; SCHILP ANDREA
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OFFENBERG, MICHAEL; FUNK, KARSTEN; SCHILP, ANDREA
PAS BOSCH GMBH ROBERT; KULCKE HANS MARTIN; GOETZ SIEGBERT; LAERMER FRANZ;
OFFENBERG MICHAEL; FUNK KARSTEN; SCHILP ANDREA
PAA DE; DE; DE; DE; DE; DE
TL English; French; German
LA German
DT Patent
PIT WOA1 PUBL.OF THE INT.APPL. WITH INT.SEARCH REPORT
FDT with international search report
PI WO 9534798 A1 19951221
DS RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: JP US
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19960229 WODFPE REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO
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19960403 WO121 EP: PCT APP. ART. 158 (1)
19980904 WONENP NON-ENTRY INTO THE NATIONAL PHASE IN:
JP 96501450
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JP 96501450
19990305 WONENP NON-ENTRY INTO THE NATIONAL PHASE IN:
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MEMBER 2

LEVEL 1

AN 14522755 INPADOC
TI ACCELEROMETER
IN KULCKE, HANS-MARTIN; GOETZ, SIEGBERT; LAERMER, FRANZ; OFFENBERG, MICHAEL;
FUNK, KARSTEN; SCHILP, ANDREA
INS KULCKE HANS-MARTIN; GOETZ SIEGBERT; LAERMER FRANZ; OFFENBERG MICHAEL;
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PAS BOSCH GMBH ROBERT
PAA DE
TL English; French; German
LA German
DT Patent
PIT EPA1 PUBL. OF APPLICATION WITH SEARCH REPORT
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DS R: DE GB
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ICM (6) G01C019-56

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19970402 EPAK A1 + DESIGNATED CONTRACTING STATES IN AN APPLICATION WITH SEARCH
REPORT:
DE GB
19970402 EPA1 + PUBLICATION OF APPLICATION WITH SEARCH REPORT
19970402 EP17P + REQUEST FOR EXAMINATION FILED
970116

MEMBER 3

LEVEL 1

AN 27911986 INPADOC
TI BESCHLEUNIGUNGSSENSOR
IN KULCKE, HANS-MARTIN, DIPL.-PHYS., 71032 BOEBLINGEN, DE; GOETZ, SIEGBERT,
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INA DE; DE; DE; DE; DE
PA ROBERT BOSCH GMBH, 70469 STUTTGART, DE
PAS BOSCH GMBH ROBERT
PAA DE
DT Patent
PIT DEA1 DOCUMENT LAID OPEN (FIRST PUBLICATION)
PI DE 19500800 A1 19951221
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OSDW 96-041173
ICM (6) G01P015-08
ICS (6) G01P015-10; (6) G01P009-04
ICA (6) G01H001-10
EPC G01C19/56F1

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19950113 DEAE A DOMESTIC APPLICATION (PATENT APPLICATION)
DE 1995-19500800 A 19950113
19951221 DEA1 + LAYING OPEN FOR PUBLIC INSPECTION
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